

What is claimed is:

[Claim 1] 1. A biasing circuit receiving an input current and a reference voltage, the biasing circuit comprising:

a delay circuit, having a first input terminal, a second input terminal, a third input terminal, a fourth input terminal, a first output terminal and a second output terminal, wherein the first input terminal is adapted for receiving the input current, the second input terminal is grounded, the third input terminal is adapted for receiving the reference voltage;

a compensation circuit, coupled to the first output terminal of the delay circuit, for outputting a compensation voltage according to a first differential voltage at the first output terminal of the delay circuit; and

a comparison circuit, having a first input terminal, a second input terminal and an output terminal, the first input terminal of the comparison circuit coupled between the compensation circuit and the first output terminal of the delay circuit to receive the compensation voltage, the second input terminal of the comparison circuit receiving the reference voltage, the comparison circuit comparing the compensation voltage and the reference voltage to output a comparison signal from the output terminal of the comparison circuit to the fourth input terminal of the delay circuit, wherein the delay circuit outputs a second differential voltage from the second output terminal of the delay circuit according to the input current and the comparison signal.

[Claim 2] 2. The biasing circuit of claim 1, wherein the compensation circuit comprises:

a constant current source, having a first terminal and a second terminal, wherein the second terminal is adapted for outputting a constant current; and

a voltage detecting circuit, coupled to the second terminal of the constant current source, for generating the compensation voltage according to the constant current, wherein the second output terminal of the delay circuit is coupled between the constant current source and the voltage detecting circuit.

[Claim 3] 3. The biasing circuit of claim 2, wherein the voltage detecting circuit comprises a resistor.

[Claim 4] 4. The biasing circuit of claim 1, wherein the delay circuit comprises:

a variable current source, for receiving the input current and outputting a variable current from a current output terminal of the variable current source;
a first transistor, having a drain terminal, a source terminal and a gate terminal, wherein the source terminal is coupled to the current output terminal of the variable current source and the gate terminal of the first transistor is grounded;
a first resistor circuit, having a first terminal, a second terminal and a third terminal, wherein the first terminal is coupled to the drain terminal of the first transistor, the second terminal is grounded and the third terminal is coupled to the output terminal of the comparison circuit;
a second transistor, having a source terminal, a drain terminal and a gate terminal, wherein the source terminal is coupled to the current output terminal of the variable current source and the gate terminal of the second transistor is coupled to the third input terminal of the delay circuit; and
a second resistor circuit, having a first terminal, a second terminal and a third terminal, wherein the first terminal is coupled to the drain terminal, the second terminal is grounded, the third terminal is coupled to the output terminal of the comparison circuit, and wherein the first output terminal of the delay circuit is disposed between the first transistor and the first resistor circuit, and the second output terminal of the delay circuit is disposed between the second transistor and the second resistor circuit.

[Claim 5] 5. The biasing circuit of claim 4, wherein the first resistor circuit comprises a transistor.

[Claim 6] 6. The biasing circuit of claim 4, wherein the second resistor circuit comprises a transistor.

[Claim 7] 7. The biasing circuit of claim 1, wherein the reference voltage is generated from a reference voltage generating circuit.

[Claim 8] 8. A voltage control oscillator receiving an input voltage and a reference voltage, the voltage control oscillator comprising:

a voltage/current converter, for receiving and converting the input voltage into an input current and outputting the input current;

a biasing circuit, coupled to the voltage/current converter, the biasing circuit comprising:

a delay circuit, having a first input terminal, a second input terminal, a third input terminal, a fourth input terminal, a first output terminal and a second output terminal, wherein the first input terminal is adapted for receiving the input current, the second input terminal is grounded and the third input terminal is adapted for receiving the reference voltage;

a compensation circuit, coupled to the first output terminal of the delay circuit, for outputting a compensation voltage according to a first differential voltage at the first output terminal of the delay circuit; and

a comparison circuit, having a first input terminal, a second input terminal and an output terminal, wherein the first input terminal is coupled between the compensation circuit and the first output terminal of the delay circuit to receive the compensation voltage, the second input terminal of the comparison circuit is adapted for receiving the reference voltage, the comparison circuit is adapted for comparing the compensation voltage and the reference voltage to output a comparison signal from the output terminal of the comparison circuit to the fourth input terminal of the delay circuit, and wherein the delay circuit outputs a second differential voltage from the second output terminal of the delay circuit according to the input current and the comparison signal; and

an oscillation circuit, coupled to the voltage/current converter and the biasing circuit, for receiving the input current, the first differential voltage and the second differential voltage and outputting a clock signal.

[Claim 9] 9. The voltage control oscillator of claim 8, wherein the compensation circuit comprises:

a constant current source, having a first terminal and a second terminal, wherein the second terminal is adapted for outputting a constant current; and
a voltage detecting circuit, coupled to the second terminal of the constant current source, for generating the compensation voltage according to the

constant current, wherein the second output terminal of the delay circuit is coupled between the constant current source and the voltage detecting circuit.

[Claim 10] 10. The voltage control oscillator of claim 9, wherein the voltage detecting circuit comprises a resistor.

[Claim 11] 11. The voltage control oscillator of claim 8, wherein the delay circuit comprises:

a variable current source, for receiving the input current and outputting a variable current from a current output terminal of the variable current source;
a first transistor, having a drain terminal, a source terminal and a gate terminal, wherein the source terminal is coupled to the current output terminal of the variable current source and the gate terminal is grounded;
a first resistor circuit, having a first terminal, a second terminal and a third terminal, wherein the first terminal is coupled to the drain terminal of the first transistor, the second terminal is grounded and the third terminal is coupled to the output terminal of the comparison circuit;
a second transistor, having a source terminal, a drain terminal and a gate terminal, wherein the source terminal is coupled to the current output terminal of the variable current source and the gate terminal is coupled to the third input terminal of the delay circuit; and
a second resistor circuit, having a first terminal, a second terminal and a third terminal, wherein the first terminal is coupled to the drain terminal of the second transistor, the second terminal is grounded and the third terminal is coupled to the output terminal of the comparison circuit, and wherein the first output terminal of the delay circuit is disposed between the first transistor and the first resistor circuit, and the second output terminal of the delay circuit is disposed between the second transistor and the second resistor circuit.

[Claim 12] 12. The voltage control oscillator of claim 11, wherein the first resistor circuit comprises a transistor.

[Claim 13] 13. The voltage control oscillator of claim 11, wherein the second resistor circuit comprises a transistor.

[Claim 14] 14. The voltage control oscillator of claim 8, the oscillation circuit comprises a plurality of delay circuits and a differential circuit.

[Claim 15] 15. The voltage control oscillator of claim 8, wherein the reference voltage is generated from a reference voltage generating circuit.

[Claim 16] 16. An electronic device comprising at least one biasing circuit, the biasing circuit comprising:

a delay circuit, having a first input terminal, a second input terminal, a third input terminal, and a fourth input terminal, a first output terminal and a second output terminal, wherein the first input terminal is adapted for receiving an input current, the second input terminal is grounded and the third input terminal is adapted for receiving a reference voltage;

a compensation circuit, coupled to the first output terminal of the delay circuit, for outputting a compensation voltage according to a first differential voltage at the first output terminal of the delay circuit; and

a comparison circuit, having a first input terminal, a second input terminal and an output terminal, wherein the first input terminal is coupled between the compensation circuit and the first output terminal of the delay circuit to receive the compensation voltage, the second input terminal is adapted for receiving the reference voltage, the comparison circuit is adapted for comparing the compensation voltage and the reference voltage to output a comparison signal from the output terminal of the comparison circuit to the fourth input terminal of the delay circuit, wherein the delay circuit outputs a second differential voltage from the second output terminal of the delay circuit according to the input current and the comparison signal.

[Claim 17] 17. The electronic device of claim 16, wherein the compensation circuit comprises:

a constant current source, having a first terminal and a second terminal, wherein the second terminal is adapted for outputting a constant current; and

a voltage detecting circuit, coupled to the second terminal of the constant current source, for generating the compensation voltage according to the constant current, wherein the second output terminal of the delay circuit is coupled between the constant current source and the voltage detecting circuit.

[Claim 18] 18. An electronic device comprising at least one voltage control oscillator, the voltage control oscillator circuit receiving an input voltage and a reference voltage and comprising:

a voltage/current converter, for receiving and converting the input voltage into an input current and outputting the input current;

a biasing circuit, coupled to the voltage/current converter, the biasing circuit comprising:

a delay circuit, having a first input terminal, a second input terminal, a third input terminal, a fourth input terminal, a first output terminal and a second output terminal, wherein the first input terminal is adapted for receiving the input current, the second input terminal is grounded, the third input terminal is adapted for receiving the reference voltage;

a compensation circuit, coupled to the first output terminal of the delay circuit, for outputting a compensation voltage according to a first differential voltage at the first output terminal of the delay circuit; and

a comparison circuit, having a first input terminal, a second input terminal and an output terminal, wherein the first input terminal is coupled between the compensation circuit and the first output terminal of the delay circuit to receive the compensation voltage, the second input terminal is adapted for receiving the reference voltage, the comparison circuit is adapted for comparing the compensation voltage and the reference voltage to output a comparison signal from the output terminal of the comparison circuit to the fourth input terminal of the delay circuit, wherein the delay circuit outputs a second differential voltage from the second output terminal of the delay circuit according to the input current and the comparison signal; and

an oscillation circuit, coupled to the voltage/current converter and the biasing circuit, for receiving the input current, the first differential voltage and the second differential voltage and outputting a clock signal.